User Manual

for the Add-On cards:

820951 ADD2-DVI-Dual-Internal
820952 ADD2-DVI-Dual

AGP **D**igital **D**isplay second generation card with **Dual DVI** transmitters
Designed primarily for 986LCD-M family and KT965/Flex motherboards

820951 ADD2-DVI-Dual-Internal

820952 ADD2-DVI-Dual

	ADD2-DVI-Dual-Internal	ADD2-DVI-Dual
Part no.	820951	820952
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E	Oct. 31st 2007	MLA	Design update. Corrections and more info added.
D	Sept. 27th, 2007	MLA	Item no. corrected on front page. Added text.
C	Sept. 7th, 2007	MLA	Installation guide added.
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If you have questions about installing or using your KONTRON Technology Product, check this User's Manual first – you will find answers to most questions here. To obtain support, please contact your local Distributor or Field Application Engineer (FAE).

Before Contacting Support: Please be prepared to provide as much information as possible:

- ADD-On Board
    1. Type.
    2. Part-number (Number starting with "68").
- Configuration
    1. Motherboard Type
    2. BIOS Revision (Find the Version Info (BIOS ID) in the BIOS Setup Menu)
    3. BIOS Settings different than *Default* Settings (Display related settings).
    4. O/S Make and Version.
    5. Graphic Driver Version numbers.
    6. Attached LCD Panel(s) etc.

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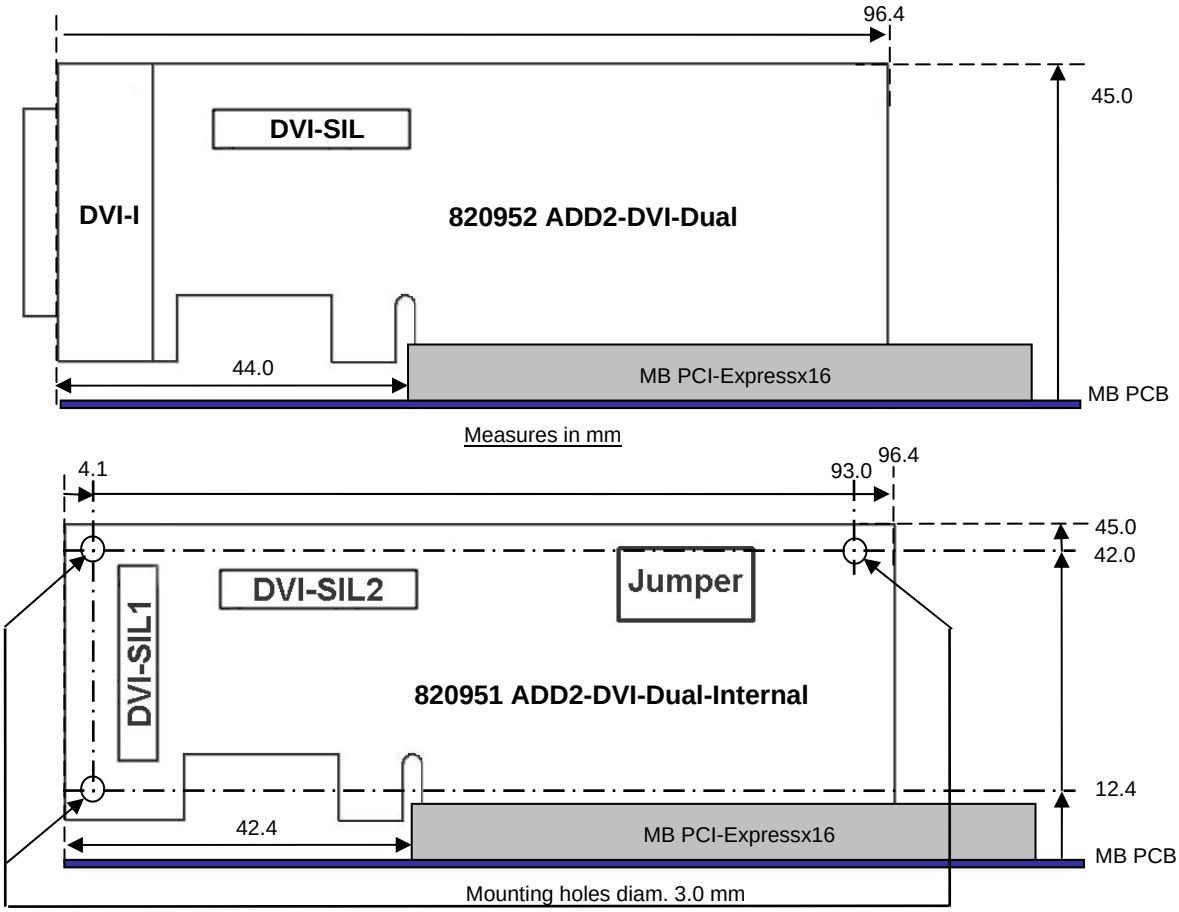
Introduction

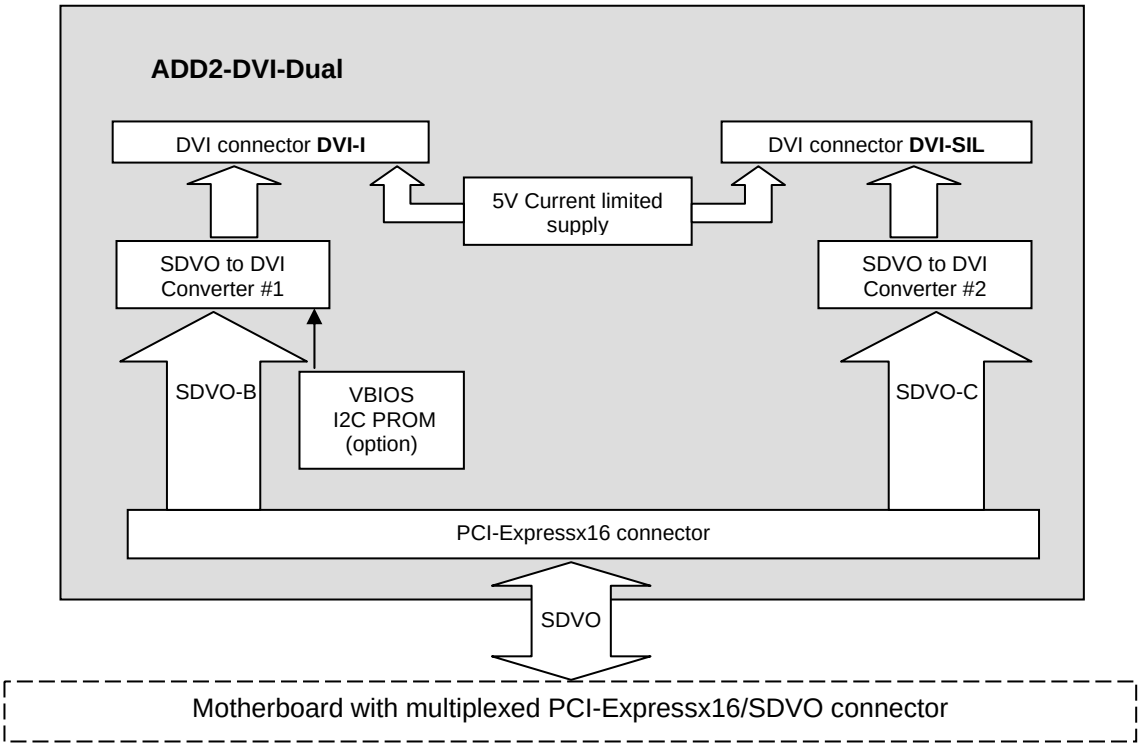
- Dual DVI Transmitter each working as Single Transmitter up to 165Mpixels/s
- Panel resolution up to 1920x1200 or similar
- Monitor Detection supported through Hot Plug or Receiver Sense
- DVI 1.0 compliant
- High-speed SDVO1 serial (1G~2Gbps) AC-coupled
- Differential RGB inputs
- Complete Windows and DOS driver support
- Included DVI Cables to implement dual DVI connectors
- DVI Bracket (Full Height) and screws are included for the 820952 ADD2-DVI-Dual

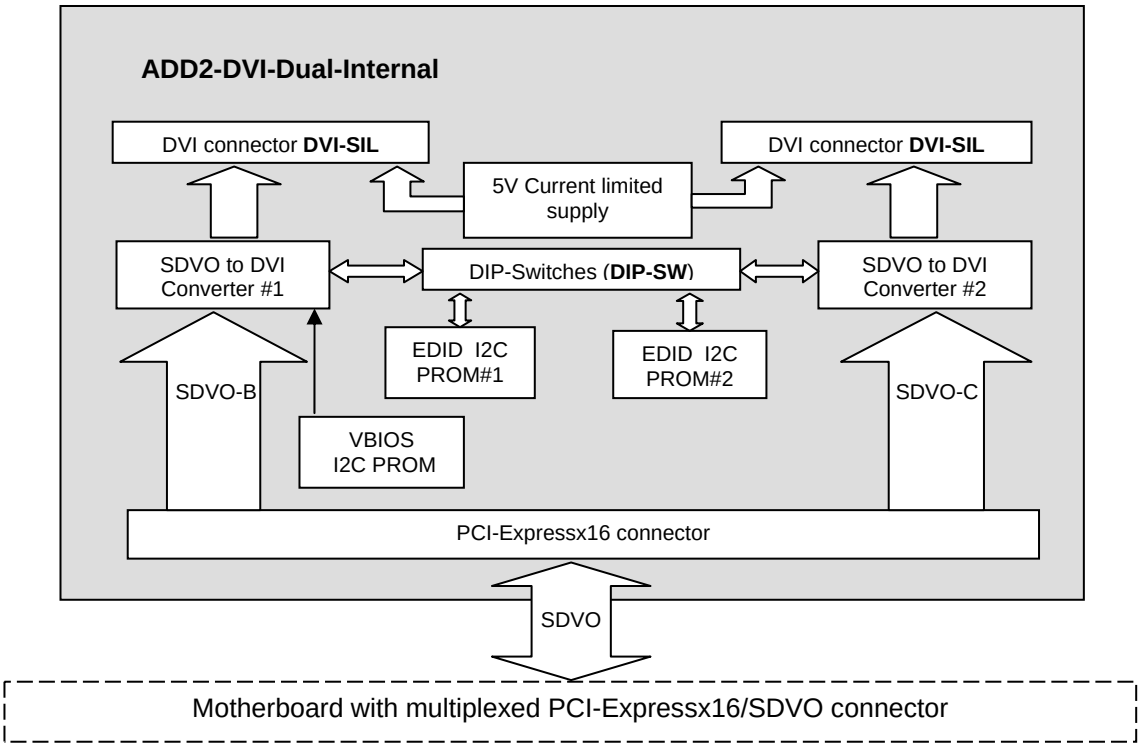
The ADD2-DVI-Dual cards are based on the Silicon Image SiI1364 DVI transmitter. The ADD2-DVI-Dual is equipped with two SiI1364 and supports two independent displays having resolutions up to 1920x1200 possible. The card is designed for the PCI-Expressx16 connector which on the 986LCD-M family of motherboards and on the KT965/Flex motherboard is multiplexed PCI-Expressx16 and SDVO. When the ADD2-DVI card is plugged into the PCI-Expressx16 connector then the motherboard automatically detects the card and select SDVO output. The card operates at pixel rates of up to 165MHz per link, supporting 1920x1200 panels at a 60Hz refresh rate.

Mechanical Drawing



Functional Diagram

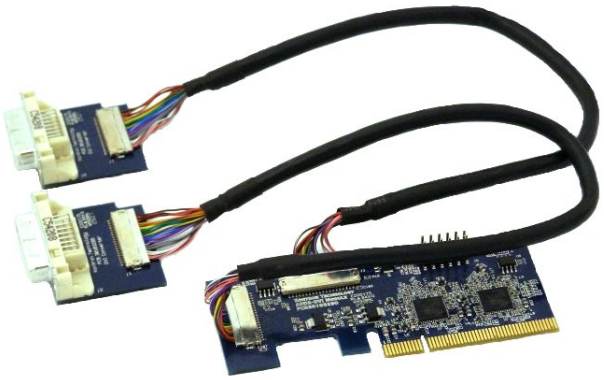




Note that VBIOS located in I2C is not used as default. The reason is that the BIOS used in the Kontron Motherboards of 986LCD-M and KT965 families are supporting the ADD2-DVI card directly.

Included DVI Cable

The ADD2-DVI-Dual includes DVI cable (item no. 821524) for second DVI output and the ADD2-DVI-Dual-Internal includes two of these DVI cables, see picture below.



820951 ADD2-DVI-Dual-Internal with cable kit mounted.

The 821524 ADD2-DVI Aux cable kit is 300mm long cable and is based on two pieces of Hirose DF19L-20P-1H connector. The wiring is a one-to-one connection. The cable kit includes a DVI-SIL to DVI-I converter module.

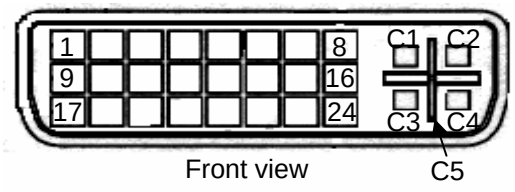
Cable wiring:

DVI-SIL 1 Pin No.	DVI-SIL 2 Pin No.	DVI-I Pin No.	Signal
1	1	-	GND
2	2	-	GND
3	3	14	+5V (55mA)
4	4	16	Hot Plug Detect
5	5	15	GND
6	6	7	DDC Data
7	7	6	DDC Clock
8	8	-	GND
9	9	24	TMDS Clock-
10	10	23	TMDS Clock+
11	11	22	GND
12	12	17	TMDS Data 0-
13	13	18	TMDS Data 0+
14	14	19	GND
15	15	9	TMDS Data 1-
16	16	10	TMDS Data 1+
17	17	11	GND
18	18	1	TMDS Data 2-
19	19	2	TMDS Data 2+
20	20	3	GND

Connector Description

The **DVI-I** connector is a Molex 74320-1004 (or similar). Only DVI Digital output is supported.
(Both DVI-I and DVI-D cables can be connected).

Pin No.	Signal	Type	Pull Up
1	TMDS Data 2-	LVDS OUT	
2	TMDS Data 2+	LVDS OUT	
3	TMDS Data 2/4 Shield	PWR	
4	N.C.	-	
5	N.C.	-	
6	DDC Clock	IO	2K2
7	DDC Data	IO	2K2
8	N.C.	-	
9	TMDS Data 1-	LVDS OUT	
10	TMDS Data 1+	LVDS OUT	
11	TMDS Data 1/3 Shield	PWR	
12	N.C.	-	
13	N.C.	-	
14	+5V (55mA)	PWR	
15	GND	PWR	
16	Hot Plug Detect	I	
17	TMDS Data 0-	LVDS OUT	
18	TMDS Data 0+	LVDS OUT	
19	TMDS Data 0/5 Shield	PWR	
20	N.C.	-	
21	N.C.	-	
22	TMDS Clock Shield	PWR	
23	TMDS Clock+	LVDS OUT	
24	TMDS Clock-	LVDS OUT	
C1 - C5	N.C.	-	



The **DVI-SIL**, is a Hirose DF19G-20P-1H. Mating connector is Hirose DF19L-20P-1H or similar.

Pin No.	Signal	Type	Pull Up
1	GND	PWR	
2	GND	PWR	
3	+5V (55mA)	PWR	
4	Hot Plug Detect	I	
5	GND	PWR	
6	DDC Data	IO	2K2
7	DDC Clock	IO	2K2
8	GND	PWR	
9	TMDS Clock-	LVDS OUT	
10	TMDS Clock+	LVDS OUT	
11	GND	PWR	
12	TMDS Data 0-	LVDS OUT	
13	TMDS Data 0+	LVDS OUT	
14	GND	PWR	
15	TMDS Data 1-	LVDS OUT	
16	TMDS Data 1+	LVDS OUT	
17	GND	PWR	
18	TMDS Data 2-	LVDS OUT	
19	TMDS Data 2+	LVDS OUT	
20	GND	PWR	
Shield	GND	PWR	

Jumper Description (unsupported)

The Jumpers (only available on the ADD2-DVI-Dual-Internal) are used to configure one or both DVI outputs for TMDS or PanelLink panels where DDC (EDID codes) are not integrated. By use of jumpers it is possible to connect onboard EEPROM to the DDC channel and to select panel to be always connected. The panel specific EDID code must be loaded to the relevant EEPROM.

Signal Name	pin	pin	Signal Name
DDCCLKU7	1	2	DDCCLK1
DDCDATU7	3	4	DDCDAT1
ALWAYSON1	5	6	HOTPLUG1
DDCCLKU8	7	8	DDCCLK2
DDCDATU8	9	10	DDCDAT2
ALWAYSON2	11	12	HOTPLUG2

When mounted jumpers 1-2, 3-4 and 5-6 then EEPROM (U7) then DVI-SIL1 will be configured for TMDS/PanelLink displays (no integrated DDC and HotPlug).

Similar when mounted jumper 7-8, 9-10 and 11-12 then EEPROM (U8) then DVI-SIL2 will be configured for TMDS/PanelLink displays.

Installation Guide

Plug in the ADD2-DVI card to the PCIe-x16 slot (nearest CPU)
Optionally fix the 820952 ADD2-DVI-Dual directly to DVI cut out hole in the chassis or mount the included DVI Full Height Bracket + two screws (bracket/screws are not included in the revision 820952-R12).
Optionally fix the 820951 ADD2-DVI-Dual-Internal to bracket or chassis via the 3 mounting holes.
Optionally connect 821524 DVI Aux Cable(s) to the ADD2-DVI card
Optionally mount the DVI connector adapters in the chassis
Boot and enter BIOS
Select Chipset > North Bridge Configuration > Video Function Configuration >
Boot Type = [CRT+EFP] or [EFP] (if boot on DVI panel no.1 is requested)
SDVO = [DVI – D]
Select Exit menu.
Hint: Using also Secure CMOS = [Enabled] will make sure that Windows will not change Boot Type in BIOS.
Save Changes and Exit.

Boot into OS and load Intel Graphics Media Driver. For Windows install version 6.14.10.4859 (win2K_xp1431.exe) or newer.

Select output to Digital Monitor (DVI panel no.1) and optionally Digital Monitor 2 (DVI panel no.2) .

Electrical Specification

Power consumption:

The +5V available on the DVI connectors can deliver minimum 55mA continuously and 1A peak. The output is protected by thermal shutdown circuit.

3.3V 5W/2.5W max. (Dual/Single).
12V 1W max.

Operating temperature: 0-60ºC